

REMARKS

Claims 1-7 and 10-17 are pending herein.

By this Amendment, claim 8 has been canceled, and claims 14 and 17 have been amended to further clarify the subject matter contained therein. Thus, no new matter has been added by this Amendment.

I. Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 8, 14 and 17 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite because claim 8 depends from claim 2 and both of these claims recite guide holes, and because "to the wiring pattern" in claim 14 and "formed integral" in claim 17 is not clear. In particular, the Office Action asserts that if the terms "to the wiring pattern" in claim 14 is merely a typographical error, removal of the terms will make claim 14 acceptable. With respect to claim 17, the Examiner states that if "formed integral" is used as a method step indicating that the wiring pattern and reinforcing patterns are formed at the same step, then the claim is acceptable.

By this Amendment, claim 8 has been canceled, claim 14 is amended as suggested by the Examiner, and claim 17 is amended to recite that the reinforcing guide pattern is integrally formed with the wiring pattern on the insulating substrate.

Applicant submits that the cancellation of claim 8 and the amendments to claims 14 and 17 meet the requirements of the Patent Office. Accordingly, reconsideration and withdrawal of this rejection are requested.

II. Rejection Under 35 U.S.C. §102(b)

Claims 2-5, 8, 13 and 17 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 3,440,027 (hereinafter "Hugle"). This rejection is respectfully traversed.

The flexible wiring board as defined by claim 2 comprises a wiring pattern formed of a desired metal on an insulating substrate and a reinforcing guide pattern having a same metal as that of the wiring pattern on the insulating substrate, wherein the guide pattern has guide holes for positioning.

The flexible wiring board of the present invention may be precisely positioned relative to another wiring board to be connected by means of the guide holes 32 in reinforcing guide 31 of guide pattern 3, whereby even a multilayer wiring board can be produced with easy handling and high connection reliability as further described in the specification. See page 10, lines 12-18 of the present specification. This benefit is nowhere taught or suggested by Hugle.

Instead, Hugle merely teaches indexing holes 6 punched into one or both sides of a strip, leaving a continuous metal strip 7 to enclose the indexing holes to facilitate registration from one etching operation to the next. Nowhere does Hugle teach or suggest using guide holes to precisely position the wiring board whereby a multilayer wiring board can be produced. In other words, nowhere does Hugle teach or suggest a guide pattern that has guide holes for positioning, as recited in claim 2.

For the foregoing reasons, Applicant respectfully submits that Hugle fails to anticipate the subject matter of claim 2 or any of the claims dependent therefrom. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Rejections Under 35 U.S.C. §103(a)

A. Hugle in view of Galli

Dependent claim 12 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Hugle in view of U.S. Patent No. 3,781,596 (hereinafter "Galli"). This rejection is respectfully traversed.

Claim 12 depends directly from claim 2 and adds that the wiring pattern has projecting electrodes.

Galli was cited as allegedly teaching wiring patterns (12) with projecting electrodes (13). However, even if one of ordinary skill in the art would have found Galli to teach wiring patterns with projecting electrodes, the presently claimed invention still would not have been achieved. Specifically, nothing in Galli remedies the deficiencies of Hugle discussed above with respect to claim 2. That is, nothing in the combined teachings of Hugle and Galli would have led one of ordinary skill in the art to a flexible wiring board having a guide pattern that has guide holes for positioning.

Accordingly, Applicant submits that Hugle and Galli, whether taken alone or in combination, would not have led one of ordinary skill in the art to the invention of claim 2 or depending claim 12. Reconsideration and withdrawal of this rejection are thus respectfully requested.

B. Hugle and Galli in view of Nogawa

Dependent claims 14 and 16 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the combination of Hugle and Galli and further in view of U.S. Patent No. 4,316,320 (hereinafter "Nogawa"). This rejection is respectfully traversed.

Claims 14 and 16 each depend, directly or indirectly, from claim 2. Claim 14 adds a first wiring pattern formed on one side of the insulating substrate, and a second wiring pattern formed on an opposite side of the insulating substrate. Claim 16 adds that the second wiring pattern has flat electrodes.

Nogawa was cited as allegedly teaching a flexible wiring board with a wiring pattern on both sides of the insulation substrate with flat electrodes. However, even if one of ordinary skill in the art would have found Nogawa to teach a first wiring pattern formed on one side of the insulating substrate, and a second wiring pattern formed on an opposite side of

the insulating substrate with flat electrodes, the presently claimed invention still would not have been achieved. Specifically, nothing in Nogawa remedies the deficiencies of Hugle discussed above with respect to claim 2. That is, nothing in the combined teachings of Hugle, Galli and Nogawa would have led one of ordinary skill in the art to a flexible wiring board having a guide pattern that has guide holes for positioning.

Accordingly, Applicant submits that Hugle, Galli and Nogawa, whether taken alone or in combination, would not have led one of ordinary skill in the art to the invention of claim 2 or depending claims 14 and 16. Reconsideration and withdrawal of this rejection are thus respectfully requested.

C. Zimmerman in view of Forehand and Castro

Claims 2, 4, 13 and 17 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 4,048,438 (hereinafter "Zimmerman") in view of U.S. Patent No. 5,710,063 (hereinafter "Forehand ") and U.S. Patent No. 5,710,063 (hereinafter "Castro"). This rejection is respectfully traversed.

With respect to the rejection of claim 2 as being unpatentable over Zimmerman in view of Forehand and Castro, the Patent Office acknowledges that Zimmerman fails to disclose that the reinforcing guide pattern has guide holes for positioning.

However, the Patent Office alleged that it would have been obvious to one having ordinary skill in the art to have provided the circuit board of Zimmerman with guide holes on the guide pattern in order to properly locate the component in subsequent processing or to properly fix the board on the bed for automating placement of the component.

First, one of ordinary skill in the art would not have modified the outer periphery of the conductor pattern 14 in Zimmerman (alleged by the Patent Office to be the same as a reinforcing guide pattern as discussed above) to include guide holes therein with any reasonable expectation of success. Including guide holes in the conductor pattern 14 itself

rather than in a guide pattern separate from the conductor pattern likely would have destroyed the conducting ability of such pattern, and thereby destroyed the device of Zimmerman.

Second, even if one would have been led to have included some different form of registration holes 12 in Zimmerman, which there appears to have been no reason to do so, nothing in Zimmerman, Forehand and/or Castro would have led one to have made a wiring pattern and a separate reinforcing guide pattern of the same metal as required in claim 2. Here again, Applicant notes that the outer periphery of conductor pattern 14 is not a reinforcing guide pattern with guide holes therein and cannot be made to have guide holes therein as discussed immediately above.

Each of claims 4, 13 and 17 depend, either directly or indirectly, from claim 2. Each of these claims is believed to be allowable for the same reasons set for above for claim 2.

Accordingly, reconsideration and withdrawal of these rejections are respectfully requested.

D. Zimmerman, Forehand and Castro in view of Tsukamoto

Claims 3, 5 and 8 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the combination of Zimmerman, Forehand and Castro and further in view of U.S. Patent No. 5,841,194 (hereinafter "Tsukamoto"). This rejection is respectfully traversed.

Claim 8 is herein canceled. Thus, the rejection with respect to claim 8 is moot.

Claims 3 and 5 each depend, directly or indirectly, from claim 2. Claim 3 adds that the guide pattern has a projecting reinforcing guide having a thickness greater than that of the wiring pattern. Claim 5 adds that the guide pattern is formed as a frame shape surrounding the periphery of the wiring pattern.

Tsukamoto was cited as allegedly teaching a guide frame pattern thicker than the wiring pattern. However, even if one of ordinary skill in the art would have found

Tsukamoto to teach a guide pattern having a projecting reinforcing guide having a thickness greater than that of the wiring pattern, the presently claimed invention still would not have been achieved. Specifically, nothing in Tsukamoto remedies the deficiencies of Hugle discussed above with respect to claim 2. That is, nothing in the combined teachings of Hugle, Galli, Nogawa and Tsukamoto would have led one of ordinary skill in the art to a flexible wiring board having a guide pattern that has guide holes for positioning.

Accordingly, Applicant submits that Hugle, Galli, Nogawa and Tsukamoto, whether taken alone or in combination, would not have led one of ordinary skill in the art to the invention of claim 2 or depending claims 3 and 5. Reconsideration and withdrawal of this rejection are thus respectfully requested.

E. Zimmerman, Forehand, Castro, and Tsukamoto in view of Beck

Claims 13, 14 and 16 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the combination of Zimmerman, Forehand, Castro and Tsukamoto and further in view of U.S. Patent No. 3,466,206 (hereinafter "Beck"). This rejection is respectfully traversed.

Claims 13, 14 and 16 each depend, directly or indirectly, from claim 2. Claims 13 and 16 each adds that the wiring pattern has flat electrodes. Claim 14 adds that a first wiring pattern is formed on one side of the insulating substrate, and a second wiring pattern is formed on an opposite side of the insulating substrate.

The Office Action alleges that claim 13 recites projecting electrodes and that Beck allegedly teaches projecting electrodes on both sides of the board to embed the circuit traces and keep the top of the terminals exposed for the connection. However, claim 13 does not recite projecting electrodes. Thus, the rejection of claim 13 is incorrect.

With respect to claims 14 and 16, nothing in Beck remedies the deficiencies of Hugle discussed above with respect to claim 2. That is, nothing in the combined teachings of

Hugle, Galli, Nogawa, Tsukamoto and Beck would have led one of ordinary skill in the art to a flexible wiring board having a guide pattern that has guide holes for positioning.

Accordingly, Applicant submits that Hugle, Galli, Nogawa, Tsukamoto and Beck, whether taken alone or in combination, would not have led one of ordinary skill in the art to the invention of claim 2 or depending claims 13, 14 and 16. Reconsideration and withdrawal of this rejection are thus respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicant submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-7 and 10-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,



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